sub-region, state, wave, mode, area, species, and catch type, they can be multiplied by the appropriate effort estimate to produce estimates of total catch. For estimates of total harvest weight, these total catch estimates are in turn multiplied by the average weight per measured fish in the appropriate mode and area.

Catch estimates are obtained using information from both the dockside and telephone interviews using the following formula:

$$(Trips) \times (Average\ catch\ per\ trip) = Total\ catch$$

where trips equal the total number of finfishing trips by mode and area, average catch per trip is the mean catch by species, mode, and area, and total catch is the total of each species by mode and are.

Precision of Estimates

The numbers and pounds presented are estimates, not actual counts; therefore, the level of precision varies. Precision refers to the estimate's variability. Statistical comparison between numbers must include the variability.

Precision refers to the dispersion of the sample measurements used to calculate an estimate and the resultant variability in the estimate. The square root of the estimate of sampling variance is an estimate of the standard error of the estimate, and is almost universally used in sample surveys as a measure of precision.

The standard error is necessary for calculating confidence intervals around an estimate. The width of a confidence interval is a function of the probability level selected, and is determined from the Student's t distribution or the normal distribution. Using the normal distribution, the most commonly used confidence interval (a 95% confidence interval) is given by: estimate +/- 1.96 X (estimate of standard error). Confidence intervals provide another indication of the precision of the estimated total catch; at the same confidence level a broad interval relative to the estimate indicates a less precise estimate than does a narrow interval. The 95 percent confidence interval indicates that we can be 95 percent certain that the actual total catch is between the upper and lower confidence limits.

The standard error is also used to calculate the proportional standard error (PSE). The PSE expresses the standard error as a percentage of the estimate (standard error/estimate). It provides an alternative measure of precision and is useful in comparing the relative precision of two estimates.

- A small PSE indicates a more precise estimate than does a large PSE.
- A PSE of 20% or less is generally considered acceptable in fisheries data.